



ILC Kicker Pulsar Tests

LLNL Inductive Adder

8/12/05

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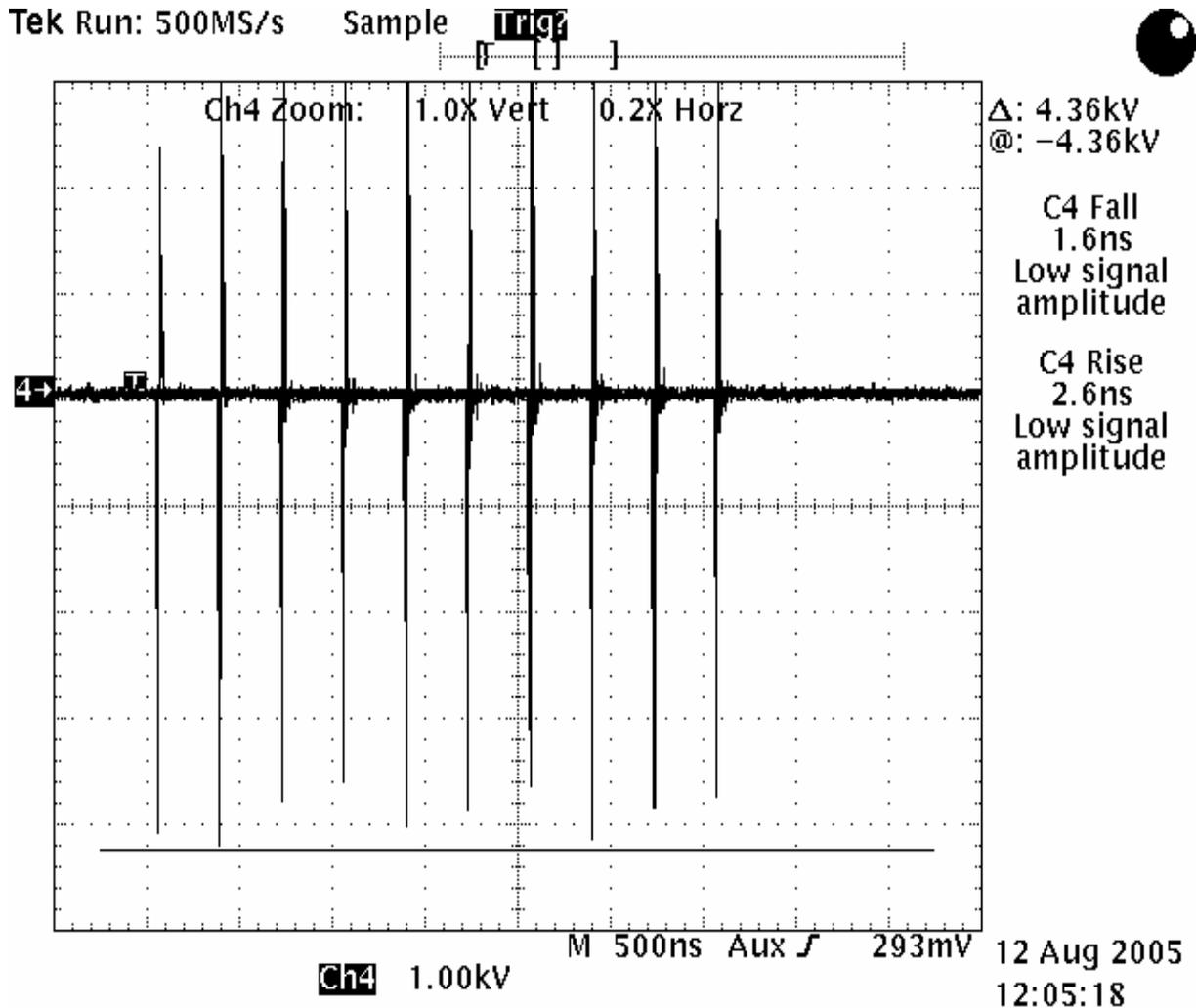
This technology is extendable, adaptable and has room for development.

← This pulser is 15:1 at 1KV primary. It produces +/- 7.5KV differential into 50 Ohms.

KEK / ATF tests done May 19, 2005. (see talk by Naito)

Lab tests at LLNL done since then:

10 Pulse Burst @ 3MHz

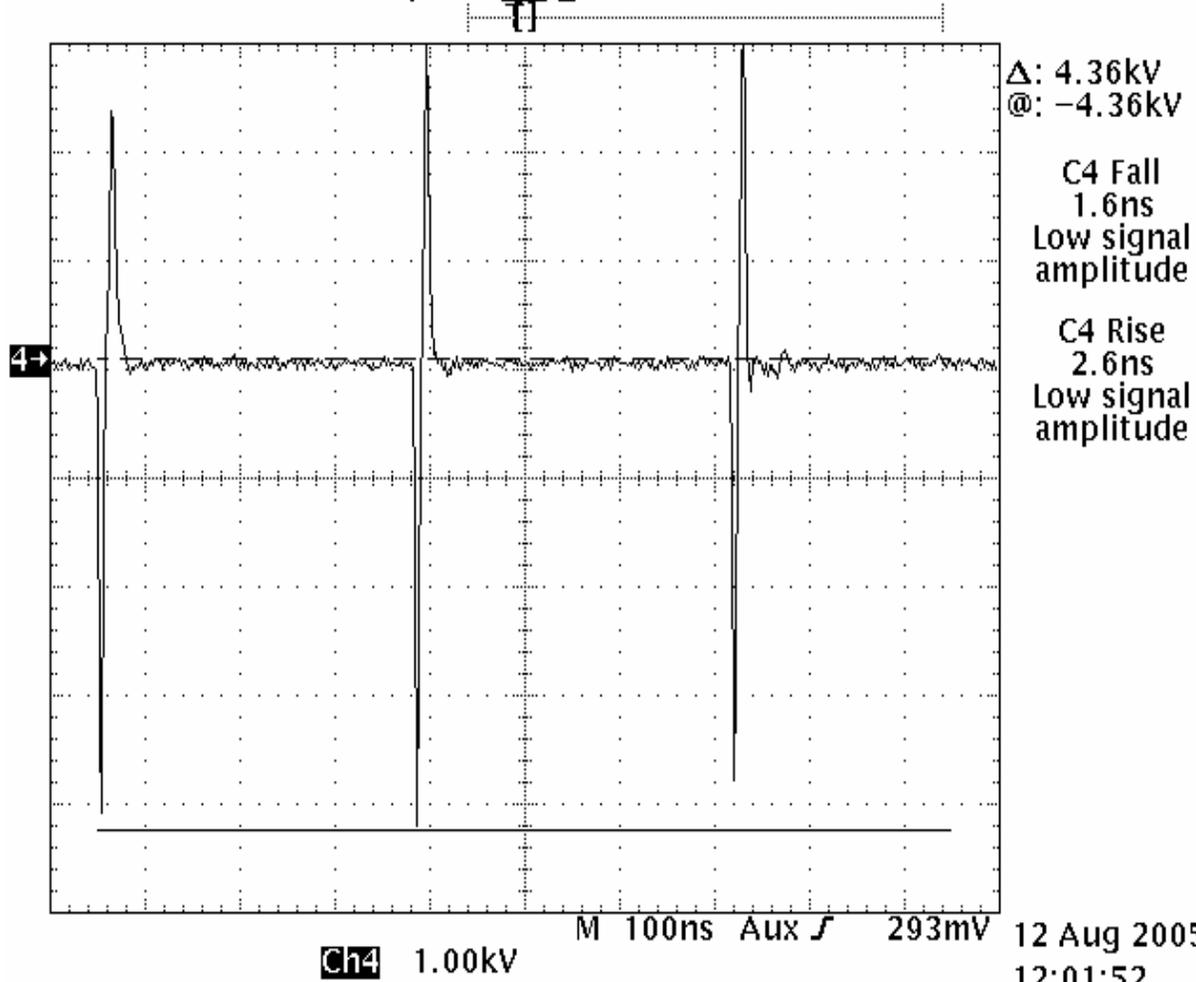


One side
of the
secondary
stub-
shorted

1st 3 Pulses of 10 Pulse Burst

Tek Run: 500MS/s

Sample **1000**

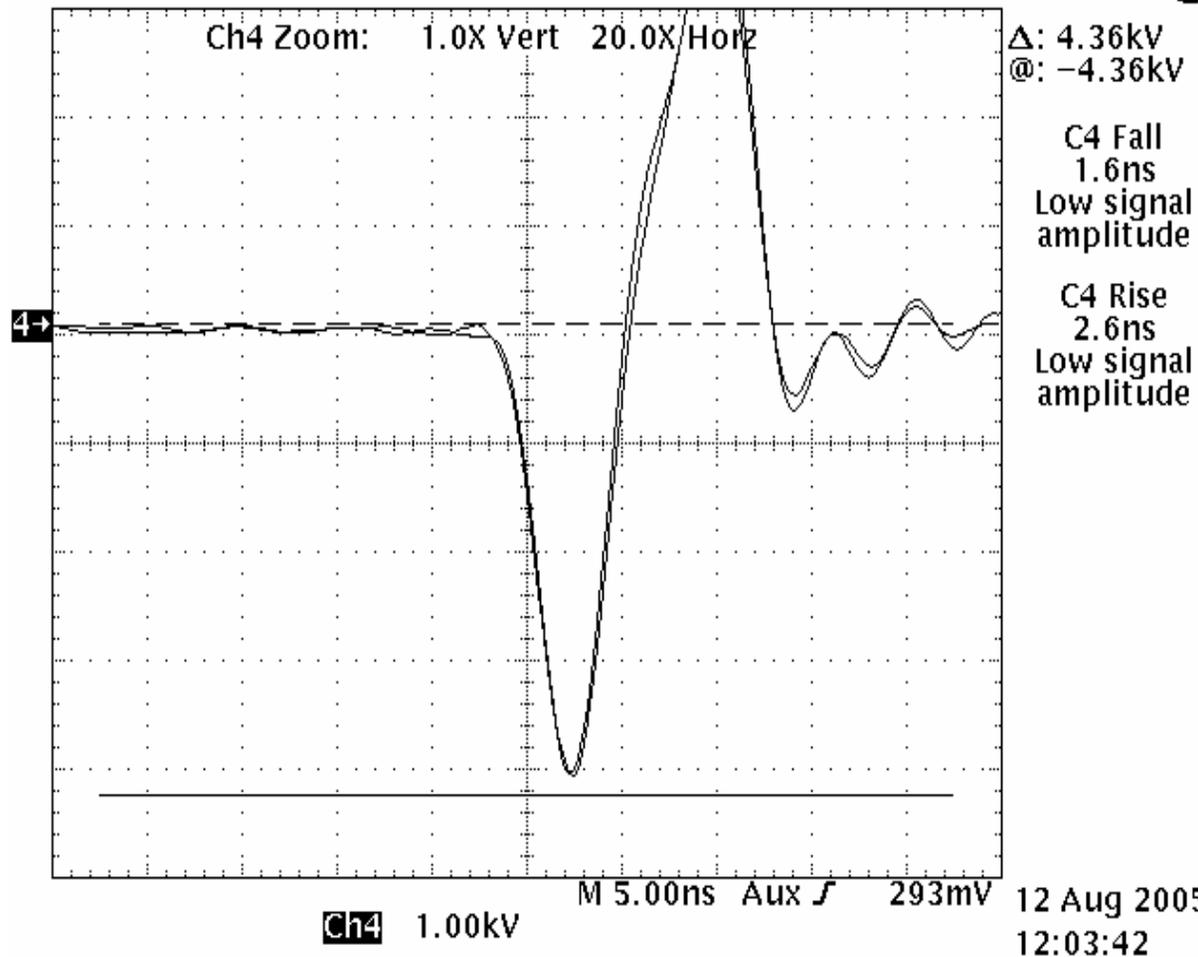


12 Aug 2005
12:01:52

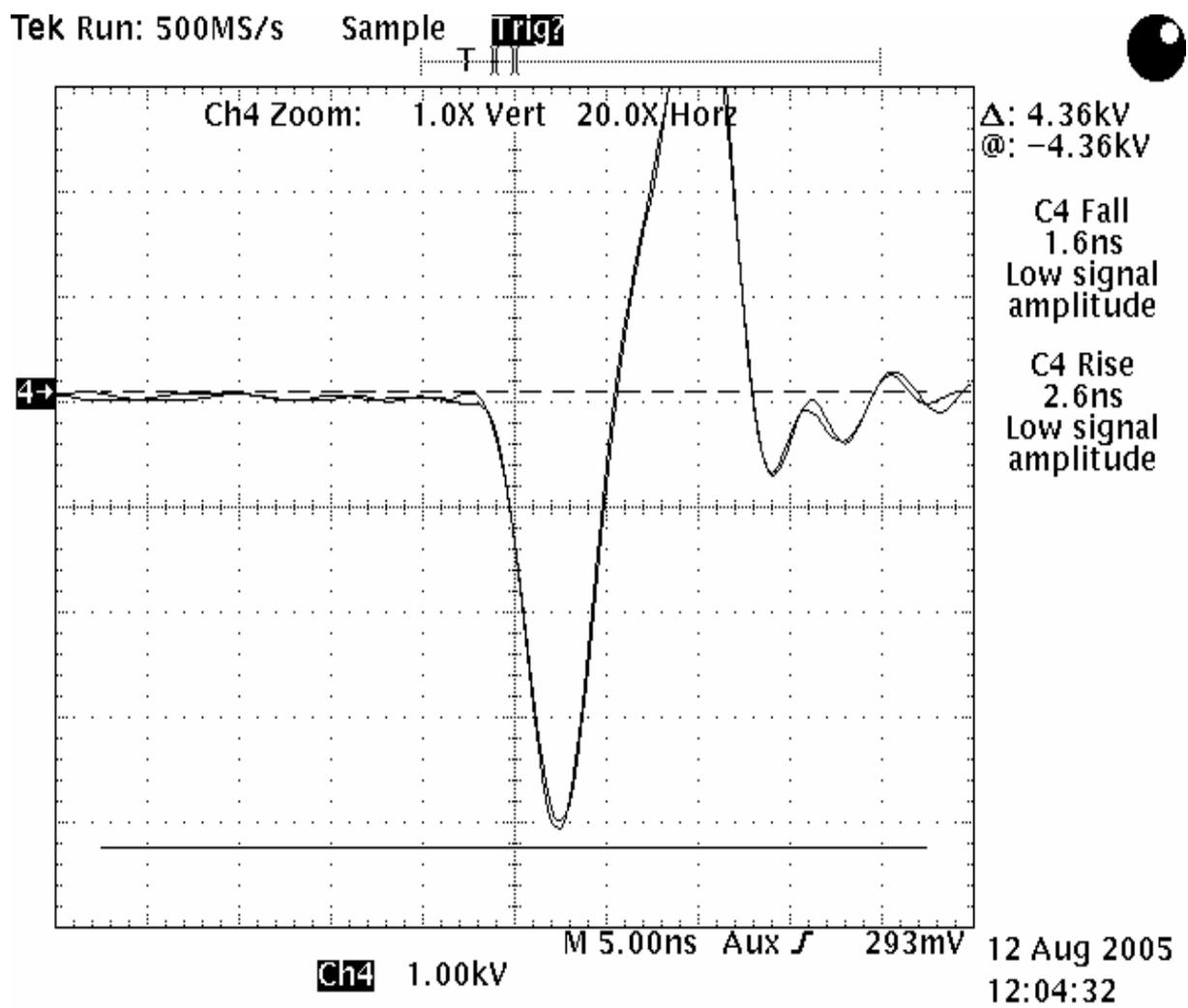
5th Pulse of 10 Pulse Burst

Tek Run: 500MS/s

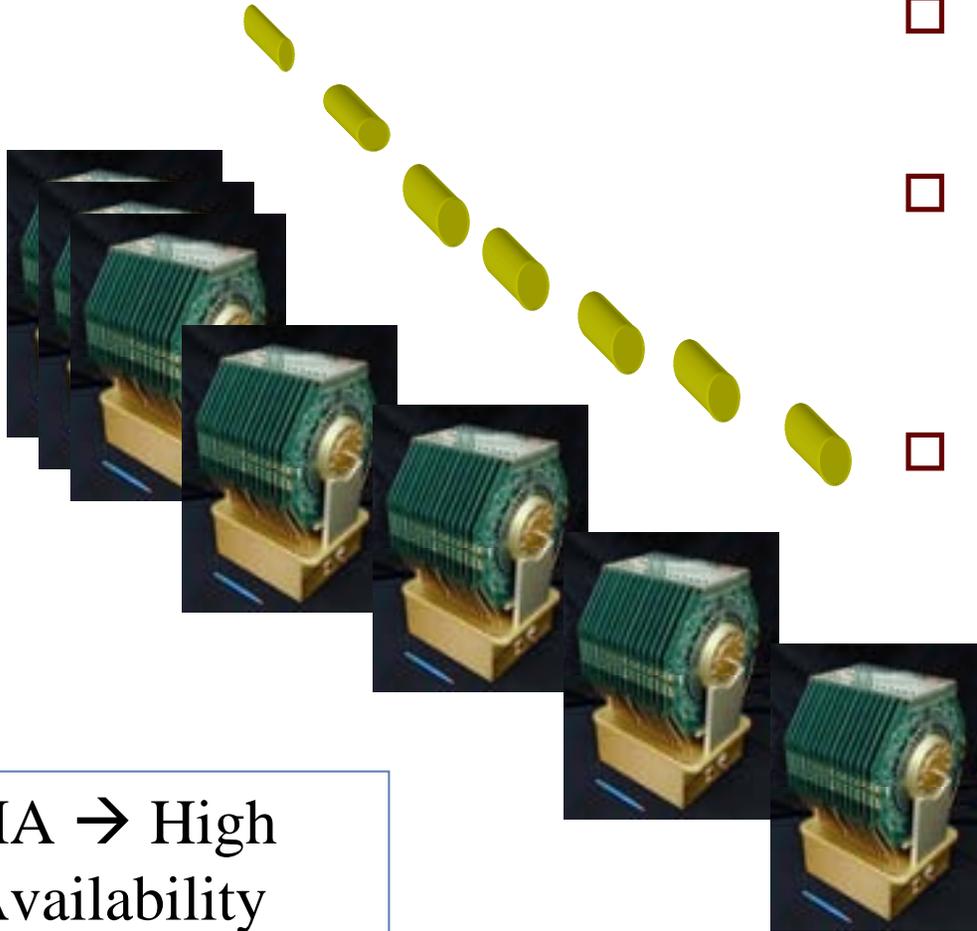
Sample **1000**



Pulse Burst



'HA' Concept DR Kicker Systems



HA → High Availability

- Approx 50 unit drivers
- n/N Redundancy System level (extra kickers)
- n/N Redundancy Unit level (extra cards)

Diagnostics on each card, networked, local wireless

Motivation for HA Design

- ILC is 10X scale, more complex than largest existing linacs
- Inoperative ILC prohibitively costly
- Current Availability for typical subsystems is inadequate for efficient ILC
- All electronics systems can achieve $A \rightarrow 1$ if designed for HA
 - Instrumentation, Controls, DC Power Systems, Klystron Modulators, DR Kickers, Protection, etc.
- Reasonable to aim for *overall* 99% for all combined electronics systems

HA - Summary

- All electronic systems for accelerator can be made HA at nominal additional cost
- Modular repetitive designs lead to better quantity manufacturing economics e.g. Modulator
- Development of prototypes with industry needed
- Telecom industry has promising solution to Control System needs (Advanced Telecom Computer Architecture (ATCA), a new standard)
- Plans:
 - Continue exploring all areas both power electronics, I&C
 - Promote collaborations to develop prototypes (e.g. Pohang)
 - Promote new instrument standards for accelerators & detectors
- Window of opportunity will be lost without early development support of HA design all areas discussed, and beyond electronics systems alone.